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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/929,716

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Antoine J. Rouphael

2001P14759US

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11/29/2004

Siemens Corporation  
Attn: Elsa Keller, Legal Administrator  
Intellectual Property Department  
186 Wood Avenue South  
Iselin, NJ 08830

EXAMINER

AGHDAM, FRESHTEH N

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/929,716

Applicant(s)

ROUPHAEL, ANTOINE J.

Examiner

Freshteh N. Aghdam

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 August 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to because the algorithm according to figure 7 differs from its detailed description described in the specification (Pg. 5, Lines 11-18). The contents of blocks 704 and 710 should be switched with each other.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claims 4 and 6 are objected to because of the following informalities:

As to claim 4, the second word "filter" should be removed in line 7.

As to claim 6, the claimed subject matter differs from the invention specified in the specification (Fig. 1, Block 106; Pg. 4, Lines 13-19). In the specification, the claimed shaping filter is placed after the RF modulator. However, as to claim 6, the shaping filter is placed between the coder and the RF modulator.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) based upon a public use or sale of the invention. de Lantremange (US Patent 5,970,093).

As to claims 1 and 2, de Lantremange teaches a method to reduce intersymbol interference by initializing a shaping filter using a self-recovering technique (blind algorithm) see Col. 1, Lines 34-37. Furthermore, de Lantremange teaches an adaptive filter that updates the coefficients of the shaping filter at optimal timing (i.e. symbol rate) until ISI reaches a steady state minimum level (Col. 3, Lines 4-15).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected as being unpatentable over de Lantremange, and further in view of Segal (US Patent 6,647,069).

As to claim 3, de Lantremange teaches all the subject matters claimed above, except for the initial shaping filter to be convolved with its complex matched filter counterpart. However, Segal, in the same field of endeavor, teaches convolving the spectral shaping filter (Fig. 4, Block 407; Col. 5, Lines 19-25) with its matched filter that could be complex (Fig. 4, Block 408). Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teaching of Segal with de Lantremange in order to improve speed of data transmission (Abstract).

Claims 4 and 5 are rejected over Segal, further in view of Kuenast (US Patent 5,027,369) and de Lantremange.

As to claims 4 and 5, Segal teaches a spectral filter (407) with certain time domain and spectral characteristics being convolved with a matched filter (408). Segal is silent about generating a data sequence and performing a convolution with the shaping filter and adaptively updating the coefficients of the shaping filter. However,

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Kuenast, in the same field of endeavor, teaches generating a data sequence to be convolved with a shaping filter (Fig. 3, Blocks 37-75; Col. 4, Lines 51-68), in which the adaptive filter is responsive to the said convolution. Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teaching of Kuenast with Segal in order to accurately recreate intersymbol interference to be subtracted out of the received signal (Col. 4, Lines 56 and 57). Kuenast doesn't teach to perform shaping filter coefficient adaptation to minimize an error metric at optimal timing points. However, de Lantremange teaches minimizing the error metric using variety of algorithm such as LMS algorithm at symbol rates after initializing the shaping filter by a blind algorithm to obtain minimal ISI (i.e. Intersymbol Interference). Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teaching of de Lantremange with Kuenast and Sehier in order to perform automatic acquisition (Col. 2, Line 64).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marchok (US Patent 5,912,920), and further in view of de Lantremange.

As to claim 6, Marchok teaches a transmission system, which comprises of a coder (Fig. 6, Block 95), shaping filters (Fig. 6, Blocks 125 and 135) and an RF modulator (155). Said shaping filters are between the coder and the RF modulator. Marchok doesn't teach that the adaptive filter updates the shaping filter coefficients at the optimal sampling points rather than at every sampling point. However, de Lantremange, in the same field of endeavor, teaches adaptively updating the shaping filter coefficients at symbol rates till a steady state ISI minimal level is reached.

Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teaching of de Lantremange with Marchok in order to guarantee the long term stability of optimum symbol detection (Col. 2, Line 65).

Claims 7, 8, and 9 are rejected as being unpatentable over Marchok and de Lantremange, further in view of Segal (US Patent 6,647,069).

As to claim 7, Marchok and de Lantremange teach all the subject matters claimed above, except for the initial shaping filter to be convolved with its complex matched filter counterpart. However, Segal, in the same field of endeavor, teaches convolving the spectral shaping filter (Fig. 4, Block 407; Col. 5, Lines 19-25) with its matched filter that could be complex (Fig. 4, Block 408). Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teaching of Segal with Marchok and de Lantremange in order to improve speed of data transmission (Abstract).

As to claims 8 and 9, Marchok, de Lantremange, and Segal disclose all the subject matters claimed above. One ordinary skilled in the art would clearly recognize that performing adaptive filtering is not possible without predicting a minimal level (i.e. threshold level). Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made in order to end the iteration when the ISI minimal level is reached.

Claims 10 and 11 are rejected over Segal, Kuenast, and de Lantremange, further in view of Sehier (US Patent 5,933,467).

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As to claims 10 and 11, Segal, Kuenast, and de Lantremange teach all the subject matters claimed above, except for the matched filter being the complex conjugate of the shaping filter. However, Sehier, in the same field of endeavor, teaches convolving the impulse response of a Nyquist filter with its complex conjugate matched filter. Therefore, it would have been obvious to one ordinary skilled in the art at the time the invention was made to combine the teaching of Sehier with Segal, Kuenast, and de Lantremange in order to optimize the system performance (Col. 9, Lines 65 and 66).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Vedat (US Patent 5,214,672), Ling (US Patent 6,167,082), and McCarty (6,628,728).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is (571) 272-6037. The examiner can normally be reached on Monday through Friday 9:00-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Freshteh Aghdam

November 28, 2004

  
MOHAMMED GHAYOUR  
SUPERVISORY PATENT EXAMINER

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